

Serial No. 10/659,219
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Amendments To The Claims:

Please amend the claims as shown. Applicants reserve the right to pursue any canceled claims at a later date.

1. (currently amended) A method for coating a substrate having at least one hole, comprising:

covering the at least one hole with a plug;

applying at least one layer to a surface of the substrate via a low-temperature coating process; and

irradiating by a high energy beam a surface near-surface region of the at least one coating layer to improve adhesion of particles of the coating layer to the substrate, and to ensure melting and homogenization of particles in the near-surface region the coating layer and a region of the substrate located directly below the irradiated near-surface region without melting and homogenizing a region of the substrate located laterally adjacent the melted and homogenized substrate region.

2. (previously presented) A method according to Claim 1, wherein the substrate is a turbine blade.

3. (cancelled).

4. (currently amended) A method according to Claim 1, wherein an electrochemical method for depositing layers is used as the low-temperature coating process is an electrochemical coating method.

5. (currently amended) A method according to Claim 1, wherein the temperature for the low-temperature coating process is below 250°C, specifically below 100°C.

6. (previously presented) A method according to Claim 1, wherein irradiation of the surface is performed using pulsed electron irradiation.

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7. (currently amended) A method according to Claim 1, wherein irradiation of the surface is performed using a laser treatment.

8. (previously presented) A method according to Claim 1, wherein during or at the end of irradiation of the surface, the plug is removed from the near-surface region of the hole.

9. (previously presented) A method according to Claim 8, wherein the plug is removed by evaporation.

10. (currently amended) A method according to Claim 1, wherein the layer is a ceramic, specifically a ceramic heat insulating layer, or a metal, specifically a an MCrAlY coating where M is selected from the group consisting of iron, cobalt and nickel (M=Fe, Co, Ni).

11. (previously presented) A method according to Claim 1, wherein the hole, of which there is at least one, is a film cooling hole or an impingement cooling hole.

12. (currently amended) A method according to Claim 1, wherein the plug is of a wax-like wax material.

13. (currently amended) A method for coating a turbine component having at least one hole, comprising:

covering the at least one hole with a plug;
applying at least one layer to a surface of the turbine component via a low-temperature coating process; and

irradiating by a high energy beam a surface near-surface region of the at least one coating layer to improve adhesion of particles of the coating layer to the substrate, and to ensure melting and homogenization of particles in the near-surface region of the layer the coating layer and a region of the substrate located directly below the irradiated near-surface region without melting

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and homogenizing a region of the substrate located laterally adjacent the melted and homogenized substrate region.

14. (currently amended) A method for recoating a substrate, which has already been used and having at least one hole, comprising:

covering the at least one hole with a plug;

applying at least one layer to a surface of the ~~turbine component~~ substrate, via a low-temperature coating process; and

irradiating by a high energy beam a surface near-surface region of the at least one coating layer to improve adhesion of particles of the coating layer to the substrate, and to ensure melting and homogenization of particles in the near-surface region of the layer the coating layer and a region of the substrate located directly below the irradiated near-surface region without melting and homogenizing a region of the substrate located laterally adjacent the melted and homogenized substrate region.

15. (new) The method according to Claim 1, wherein the melted substrate is only partially melted in a local region of the irradiation.

16. (new) The method according to Claim 1, wherein the near-surface region of the layer is scanned over a period of time by the high energy beam.

17. (new) The method according to Claim 5, wherein the temperature for the low-temperature coating process is below 100°C.

18. (new) The method according to Claim 17, wherein the temperature for the low-temperature coating process is 50°C.